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REMARKS

Claims 6 and 9-13 remain pending in the application for further consideration by the Examiner. In view of the amendments and the remarks that follow, it is believed that the application stands in condition for allowance and, as such, Applicant earnestly solicits entry of this Amendment After Final and issuance of a Notice of Allowance.

A Declaration under 37 C.F.R. 1.132 from the inventor Rajan ("Rajan Declaration") is attached hereto in support of the present application. A relatively minor clarifying amendment to claim 6 has also been made in view of Rajan Declaration (see paragraph 5).

Response to 35 USC §103(a) Rejections of Claims 6 and 9

Claims 6 and 9 were rejected under 35 USC §103(a) as being unpatentable over U.S. Patent No. 4,608,682 ("Nagashima et al.") in view of U.S. Patent No. 6,026,108 ("Lim et al."). Claim 6 has been amended and the Examiner is referred to the attached Rajan Declaration.

Applicant maintains that the relevant portions of Nagashima et al. (see, e.g., col. 4, lines 25 to 39 and Figure 3b) do not disclose, teach, or suggest at least the following elements of Applicant's claim 6:

- an injection current threshold of operation below which optical loss exceeds optical gain and above which optical gain exceeds optical loss; and/or
- the injection current having an amplitude at said threshold operation such that said optical gain and said optical loss are equal.

Rather, as indicated in the Rajan Declaration (e.g., paragraph 4), it is believed that one skilled in the art would understand Nagashima et al. to disclose an injection current i_b (injection current range i_b to i_c) of which the laser is kept in either of its two distinct stable states A, B (see, e.g., Figure 3b). Lim et al. discloses feedback to control laser injection current, but not at an injection current threshold of (laser) operation (see, e.g., column 2, lines 3 to 10).

Consequently, neither Nagashima et al. nor Lim et al., either individually or in combination, teach or suggest maintaining injection current at the threshold level of operation. Moreover, the combination of Nagashima et al. and Lim et al. fails to teach or suggest maintaining injection current at the threshold level of operation so as to provide a buffering, e.g., memory, device.

As indicated in the Rajan Declaration (e.g., paragraph 5), one of the advantages of Applicant's invention in operating at the threshold level of injection current is that, when the laser has to be reset by the injection current and hence the optical output being interrupted, the time to undertake this clearing operation is faster than if the laser was operating with a higher injection current. This is advantageous, for example, when data transmission rates are high

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because the time for the clearing is a significant factor in total speed of data handling. As mentioned in the Rajan Declaration (e.g., paragraph 5, last line and also paragraph 7), in contrast, a system according to the teaching of Nagashima et al. would be much slower to reset.

On a further point, as mentioned in the Rajan Declaration (paragraph 6) with regard to the present invention, feedback advantageously extends the finite retention time while operating at the unstable threshold region. Neither Nagashima et al. nor Lim et al. teach this aspect.

Claim 9 is dependent on claim 6 and is therefore believed to be patentable for the same reasons set forth above for claim 6 as well as for other novel features recited therein. In view of the foregoing, Applicant requests that the rejection of claims 6 and 9 be withdrawn accordingly.

Response to 35 USC §103(a) Rejections of Claims 10-13

Claims 10-13 were rejected under 35 USC §103(a) as being unpatentable over Nagashima et al. in view of Lim et al., as applied to claims 6 and 9, and further in view of U.S. Patent No. 6,104,477 ("Yoshida et al."). Applicant respectfully traverses this rejection.

Claims 10-13 are dependent from base claim 6 and therefore include all the limitations of claim 6. Consequently, the foregoing remarks corresponding to the preceding 35 USC 103(a) rejection of claim 6 in view of Nagashima et al. and Lim et al. apply equally to dependent claims 10-13 and are incorporated by reference accordingly.

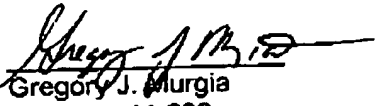
In particular, because the Nagashima et al. and Lim et al. references do not teach or suggest each and every limitation of base claim 6, and because the Yoshida et al. reference does not supply the missing limitations and therefore does not cure the deficiencies of the Nagashima et al. and Lim et al. references, dependent claims 10-13 are therefore believed to be patentable for the same reasons set forth above for base claim 6 in the preceding rejection as well as for other novel features therein. Applicant therefore respectfully requests that the Examiner withdraw the rejection of claims 10-13 under 35 USC §103(a).

Conclusion

In view of the foregoing, Applicant believes that all pending claims stand in condition for allowance. Accordingly, Applicant respectfully requests reconsideration of the application and passage of the case to issue.

Respectfully submitted,

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